

Appl. No. 10/538,329
Reply to Office Action of May 25, 2007

REMARKS/ARGUMENTS

The lower limit introduced into Claim 1 is explained on page 6, last paragraph. Claimed herein is an ink-jet recording method for recording images on a base material by jetting UV-setting ink-jet ink which contains at least color materials, UV polymerizable compound, and photo-induced polymerization initiator in a water-based medium onto the base material,

The method is characterized in that ultraviolet rays are applied to the jetted inks within a contact time in which the rate of ink transfer to the base material is 5 ml/mm^2 to 20 ml/mm^2 by the Bristow method after the ink reaches the base material (see specification pages 5-7).

More specifically, as described in page 5 line 3, the present invention relates to an ink jet recording method with use of a water-based UV setting ink.

As required by the claims, ultraviolet rays are applied to the jetted inks within a contact time in which the rate of ink transfer to the base material is 5 ml/mm^2 to 20 ml/mm^2 by the Bristow method after the ink reaches the base material.

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If the ultraviolet rays are applied before the rate of ink transfer to the base material becomes 5 ml/mm^2 , since the ink is not absorbed sufficiently in the base material, the ink dot size may be insufficient and the jetted inks may be hardened insufficiently, see page 6 lines 18-19.

On the other hand, if the ultraviolet rays are applied after the rate of ink transfer to the base material has become 20 ml/mm^2 , since the ink is absorbed excessively in the base material, color material of the ink may not be held on the surface of the base material, the image density level may be insufficient, see page 6 lines 4-6.

In order to avoid above problems, the present inventors determined that the ultraviolet rays should be applied to the jetted inks within a contact time in which the rate of ink transfer to the base material is 5 ml/mm^2 to 20 ml/mm^2 by the Bristow method after the ink reaches the base material.

The claims are rejected as obvious over Matsushima or over Yamamoto essentially on the reasoning that the present invention is an obvious optimization of disclosed parameters. Reconsideration is requested in view of the following.

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Matsushima generally discloses UV-setting ink as the Examiner suggests.

However, Matsushima teaches nothing about a parameter of timing to apply ultraviolet ray to UV-setting ink. That is, one is without direction as to which parameter to optimize or to what result.

Bristow method is usually used to check the absorptivity of a base material for water-base ink and to determine an amount of water-based ink to be jetted to the base material. However, in the present invention, the inventor conceived to use this Bristow method to determine the timing to irradiate ultraviolet rays to UV-setting ink-jet ink. As a result, the present invention can solve the above problems. This is unobvious, as is the solution that was determined.

Accordingly, the present invention recited in claim 1 would not have been obvious over Matsushima.

Yamamoto also teaches nothing about a timing parameter to apply ultraviolet ray to UV-setting ink. Therefore, as discussed above, one is without direction to which parameter to optimize or the result expected.

Accordingly, the present invention recited in claim 1 would

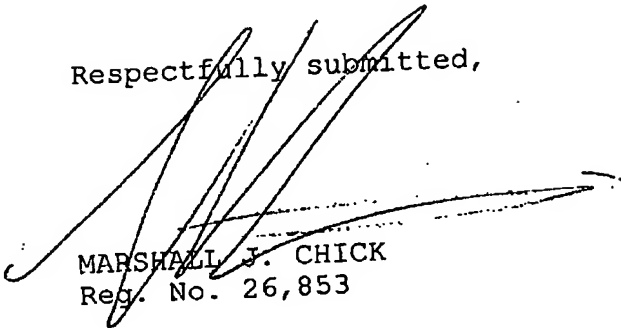
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not have been obvious over Yamamoto.

Allowance of the application is therefore respectfully
requested.

Frishauf, Holtz, Goodman
& Chick, P.C.
220 Fifth Ave., 16th Floor
New York, NY 10001-7708
Tel. No. (212) 319-4900
Fax No.: (212) 319-5101
MJC/sg

Respectfully submitted,



MARSHALL J. CHICK
Reg. No. 26,853